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WHITE RIVER SHALE OIL CORPORATION

SUITE 500 PRUDENTIAL BUILDING, 115 SOUTH MAIN STREET
SALT LAKE CITY, UTAH 84111
(801) 363-1170

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July 19, 1984

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DIVISION OF OIL
GAS & MINING

Mr. James W. Smith, Jr.
Mined Land Development Coordinator
Utah Division of Oil Gas and Mining
State Office Building, Room 4241
Salt Lake City, Utah 84114

Dear Mr. Smith:

Enclosed as Attachment A is a copy of a recent document prepared by the White River Shale Oil Corporation (WRSOC) for the Oil Shale Projects Office which presents a revised development schedule for the White River Shale Project (WRSP). This document explains the reasons for the project schedule revisions and also discusses the major work efforts which will occur in 1985 and subsequent years.

Figure 2-1 of this document presents a revised Phase I development schedule while Figure 3-1 presents a revised schedule for full development (i.e. through Phase III) of the WRSP. These schedules are intended to replace the two corresponding schedules contained on pages 22 and iii, respectively, of the WRSP Phase I Mining Permit Application (submitted to the Utah Division of Oil Gas and Mining in May, 1982).

As indicated by Figure 2-1, the remaining mine development work for Phase I will begin in mid-1989. The schedule for implementing this work will follow the same sequence of events as those shown for these activities on the original mine development schedule contained on page 22 of the Phase I Mining Permit Application; with the only exception being that the start of each milestone will be delayed by 3-1/2 years.

As discussed in Attachment A, minimal levels of construction activity will occur on tract during the time period beginning in 1985 and continuing through mid-1988 or mid-1989. However, WRSOC will maintain its current \$4.4 million reclamation bond during this period. This bond will be modified as appropriate when full-scale construction resumes.

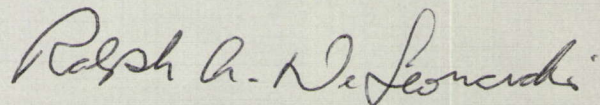
As you know WRSOC agreed, as part of the Phase I Mining Permit, to submit information to DOGM on specific areas of WRSOC's Phase I development plans as that information became available. In our July 30, 1982 response to DOGM's questions on the Phase I Mining Permit Application, WRSOC agreed to certain milestone dates associated with the submittal of this information to DOGM. As indicated in Figure 2-1, the start of construction for the Phase I process facilities, as well

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as the associated detailed engineering, has been delayed by 2-1/2 to 3-1/2 years. Consequently, WRSOC must delay our submittal of agreed upon information by a similar time span. Attachment B presents each of the agreed upon milestones, the original submittal date and the corresponding revised submittal date.

If you have questions or comments on any of the enclosed material, please feel free to call for assistance.

Sincerely,


Ralph A. DeLeonardis

RAD:mlm
Attachments

cc: R. L. Elderkin (OSPO)

Attachment B

| Milestone | Submittal Date | Revised Submittal Date |
|--|----------------|-------------------------------|
| 1) Estimated cut and fill balance for process area | December 1985 | June 1988-June 1989 |
| 2) Reclamation plan for raw shale fines pile | December 1985 | June 1988-June 1989 |
| 3) Estimated cut and fill balance for processed shale disposal area | December 1987 | June 1990-June 1991 |
| 4) Detailed cross-section of process shale pile runoff and leachate dam | December 1987 | June 1990-June 1991 |
| 5) Experimental design for processed shale pile experimental plot | December 1987 | June 1990-June 1991 |
| 6) Revegetation monitoring plan for processed shale disposal pile | March 1988 | September 1990-September 1991 |
| 7) Topsoil management plan for processed shale disposal area | March 1988 | September 1990-September 1991 |
| 8) Graded configuration of processed shale pile including post mining contours | March 1989 | September 1991-September 1992 |
| 9) Stability data on processed shale site | March 1989 | September 1991-September 1992 |
| 10) Phase I abandonment plan if decision is made to cancel Phases II and III | December 1991 | June 1994-June 1995 |
| 11) Revegetation techniques and standards for processed shale site | December 1991 | June 1994-June 1995 |

7/18/84

Attachment A

White River Shale Project
Detailed Development Plan (DDP) Update
Project Development Schedule Revision

Submitted by White River Shale Oil Corporation
July 17, 1984

1.0 Introduction

On September 3, 1982, White River Shale Oil Corporation submitted a "Detailed Development Plan (DDP) Update" to the Oil Shale Projects Office (OSPO) which contained a modified development schedule for the White River Shale Project (WRSP). Figure 1.1-2 of the DDP Update presented the Phase I Mine Construction Schedule. As of the second quarter of 1984, all scheduled milestones have been accomplished. The following milestones are complete: initial road and mine grading; construction of mine support facilities; construction of the air intake shaft; and construction of the connect and test room. Construction of the production decline is on schedule and will be completed in the third quarter of 1984.

However, all additional mine development activities scheduled to begin in 1985 or later will be delayed. The change in the mine development schedule is directly related to the delay in construction of the process facilities. Figure 1.1-1 of the September 3, 1982 DDP Update indicated that mobilization for surface facility construction would begin in the first quarter of 1986 with actual construction commencing in the third quarter of that year. However, the Owners of the White River Shale Project have concluded after re-evaluation of the overall Phase I Development Schedule that process facility construction should be delayed until Union Oil Company's Parachute Creek Oil Shale Retorting Facility has been successfully operated at design conditions for a sustained period of time.

It should be noted that this change in the project schedule in no way alters the goals and concepts of the WRSP as described in the current DDP. The WRSP development plans are still based upon the described staged development of oil shale mining, processing, and related operations in three phases. While these plans could change in the future as new information becomes available, there is no basis for making any revisions at this time. Only the changes to the schedule of events over the next four to five years can be described with confidence today.

As discussed in the September 3, 1982 DDP Update, WRSOC has executed a License Agreement with Union Oil Company which became effective on July 14, 1982. This agreement entitles WRSOC to place three observers in Union's Parachute Creek Retorting Facility. The Owners of the WRSP are also entitled to have an additional three observers at Union's operation. The information obtained by these observers is intended to provide a basis for design of the WRSP retorting facility and must, therefore, be in hand prior to the start of detailed engineering.

WRSOC firmly believes that detailed engineering for the WRSP cannot realistically begin without the knowledge gained from observing the operation of Union's retort. In order to begin construction of the Phase I process facilities in early 1986, detailed engineering was planned to begin by mid-1984. Since Union's retort is not yet operating at design conditions, the WRSP project development schedule must be revised and extended.

WRSOC is confident, however, that Union Oil will be successful in the start-up and subsequent operation of the Parachute Creek retort. Our observers will remain at Parachute Creek and provide technical support to Union during the start-up and subsequent operation of the retort.

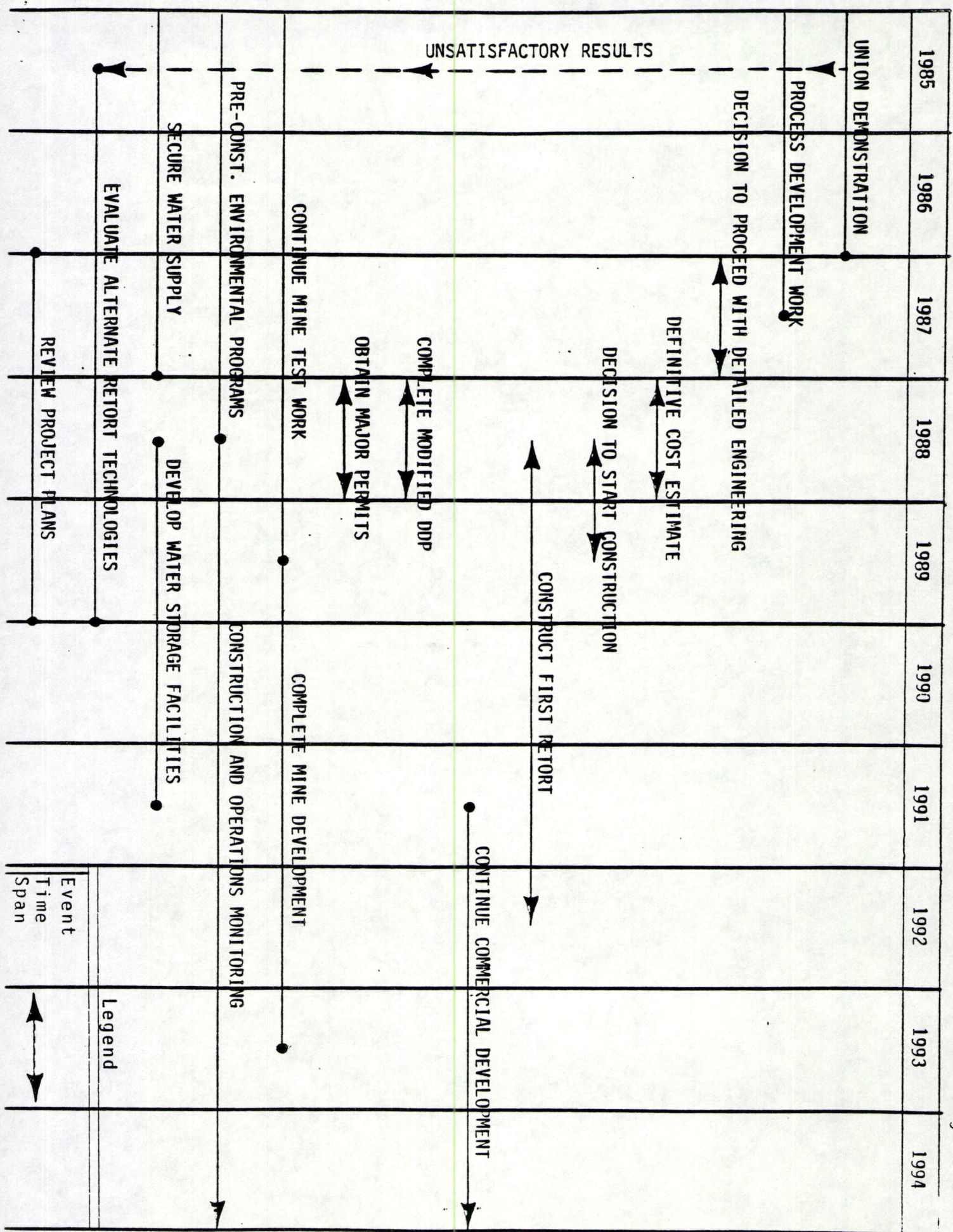
2.0 Project Development Schedule Revision -- Phase I

Figure 2-1 presents the revised Phase I Project Development Schedule for the WRSP. As indicated by the revised schedule, construction of the Phase I process facilities will begin sometime between mid-1988 and mid-1989; a 2-1/2 to 3-1/2 year delay from the previous schedule.

As indicated by Figure 1, the start of detailed engineering is contingent upon the information gathered during the operation of Union's Parachute Creek Retort. If the results from this demonstration facility are not acceptable, alternate retort technologies will be evaluated. Under such circumstances, the overall status of the WRSP would be reviewed by the Owners, and appropriate changes in project schedule and/or plans would be made.

During 1988 the DDP will, if necessary, be modified. The need to modify the DDP will be dependent upon the information gathered during the operation of Union's retort, as well as the results of further process development work scheduled to be complete by mid-1987. DDP modifications could possibly involve changes or modifications to the types of retorting and/or upgrading processes used as well as possible further changes to the development schedule. However,

Figure 2-1



WRSOC is not able to anticipate the extent of these changes at this time, since we have no way of predicting the results of the Union demonstration nor the results of future process development work. Section 2.1 provides additional information on the type of process development work expected to occur between 1985 and mid-1987.

In addition to possible DDP modification, the remaining major permits for Phase I development will be secured during 1988. The definitive cost estimate for Phase I will also be done during 1988, with the decision to begin construction occurring sometime between mid-1988 and mid-1989. Construction of the first retort will be completed by mid-1992. Section 3.0 of this document discusses plans for Phases II and III of the WRSP.

The revised schedule indicates that major work efforts in four areas will be occurring in 1985 and continue in subsequent years. These work areas are as follows: Process Development; Mine Test Work; Environmental Monitoring Programs; and Water Supply Acquisition/Storage. The following briefly describes the work associated with each of these areas.

2.1 Process Development Work

Work will continue through mid-1987 on evaluating and advancing the level of knowledge concerning technologies associated with the production of shale oil. These technologies include fluidized bed combustion of retorted oil shale and raw oil shale fines produced during crushing. Also included is further

testing of the Petrosix process, to better define its applicability for Western U.S. shales. The circular grate retort is to be tested further to better define certain technological uncertainties discovered in earlier WRSP work.

In addition, depending on the site energy balance with combustion of oil shale fines, work is planned to evaluate the economics of the alternative of agglomeration technologies of those fines that are too small to process through Union B or similar retorts.

The results of the work in the above areas will be combined with the results of the expected successful Union Demonstration Program. From this will come the scope of work for the design programs to be completed in subsequent years.

2.2 Mine Test Work

Mine test work will involve three areas: rock mechanics, ventilation, and gas monitoring. Rock mechanics monitoring stations will be used to measure the stability and roof stress in existing mine areas. Ventilation surveys and methane gas make will also be monitored in the mine for future planning and design.

Additional mine test work is currently being considered by the Owners. One possible scenario involves implementing a program where WRSOC would excavate

into the mining zone to instrument for additional rock mechanic measurements of the mine roof. The work would consist of opening an additional mine interval and using this area to determine roof stability in the proposed mine plan areas.

As indicated by the revised schedule, mine test work will continue through mid-1989. As indicated above, the full scope of work, as well as the frequency of monitoring, and other studies, has not yet been determined. Beginning in mid-1989, the remaining mine development work for Phase I will be implemented. This work will consist of construction of the service shaft and the exhaust shaft, development of the crushers, shops and pillar area, installation of conveyors and related facilities, and pre-production mine development. The schedule for implementing the remaining mine development work will follow the same sequence of events as those shown for these activities on the old Phase I Mine Construction Schedule; with the obvious exception being that the start of each milestone will be delayed by 3-1/2 years. The Phase I mine construction will be complete by mid-1993.

2.3 Environmental Programs

Beginning in 1985, a reduced environmental monitoring program will be implemented for tracts Ua and Ub. On July 2, 1984, this program was submitted to the Oil Shale Project Office (OSPO) and the BLM for review and comment. It is anticipated that this reduced program will be conducted through mid-1987 or mid-1988, depending upon the start of Phase I construction. Revised monitoring

programs will be implemented before the start of Phase I construction and at the start of Phase I operations.

2.4 Water Supply

Significant progress has been made in securing a water supply for development of Ua and Ub. An agreement was signed in 1983 between the State of Utah and the White River Shale Oil Corporation (agent for Phillips, Sohio and Sun). This agreement allows the use of up to 3,000 acre feet per year of water for the WRSP. This amount is expected to be adequate for Phase I as currently planned.

Additional water, however, is expected to be necessary to support the shale oil production levels currently planned for Phases II and III. The schedule line titled "Secure Water Supply" represents the future work necessary to secure the rights to the additional water and to establish the basis for the construction of necessary storage facilities.

Several accomplishments are planned for the period 1985 through 1987. These include completing discussions with the State of Utah concerning an agreement for the use of water from the proposed White River Dam and Reservoir. In addition, work will continue on the review and securing of alternate water sources that could serve as backup to the White River Dam.

Development of water storage facilities is expected to begin in 1988. This assumes that the decision to start construction of oil shale processing facilities has been made or is very probably going to be made prior to the middle of 1989. The construction of such facilities will be dependent on the schedule for oil shale processing facility construction that exists in the 1988-1989 time period.

3.0 Project Development Schedule Revisions -- Phase II and Phase III

As discussed in Section 1.0, it is still intended to develop the WRSP as a three-phase project. In light of the delay associated with the Phase I process facility construction, a revised overall project schedule through Phase III has been developed. Figure 3-1 presents a revised schedule for full development of the WRSP. Essentially, the sequence of events for Phases II and III remain unchanged. The only change is that the construction start date for each phase will be delayed by the number of years associated with the Phase I process facility construction delay. A basis for making other changes to this schedule does not exist at this time.

Figure 3-1

WHITE RIVER SHALE OIL CORPORATION PROJECT SCHEDULE (7/02/84)

